

C4 129. (Amended) The method of claim 127, wherein the double stranded adaptor is attached to the conditioned DNA by means of a 5' terminus of the adaptor.

Please add new claims 136-152 as follows:

--136. A method for preparing a DNA molecule comprising the steps of:

- a) obtaining a sample of DNA wherein the sample includes DNA fragments that do not include a 3' hydroxyl group, wherein the DNA molecules have been fragmented by chemical means; and
- b) conditioning DNA fragments of the sample to provide a 3' hydroxyl group thereon.

137. The method of claim 136, wherein the DNA molecules have been fragmented through a reaction that includes hydroxyl radicals.

C5 138. The method of claim 137, wherein the DNA molecules have been fragmented through treatment with a Fenton reagent.

139. The method of claim 138, wherein the Fenton reagent comprises a metal ion chelating agent and a divalent metal ion.

140. The method of claim 136, wherein DNA fragments that lack a 3' hydroxyl are conditioned through the use of a 3' exonuclease.

141. The method of claim 140, wherein the 3' exonuclease is exonuclease III.

142. The method of claim 136, wherein the DNA fragments that lack a 3' hydroxyl are conditioned through the use of a DNA polymerase that possesses 3' to 5' exonuclease activity.

143. The method of claim 136, further comprising attaching an oligonucleotide adaptor to the conditioned DNA fragments.

144. The method of claim 143, wherein the oligonucleotide adaptor is a double-stranded oligonucleotide adaptor.

145. The method of claim 144, wherein the double-stranded oligonucleotide adaptor is attached to the conditioned DNA by only one of its two strands.

146. The method of claim 145, wherein the double stranded adaptor is attached to the conditioned DNA by means of a 5' terminus of the adaptor.

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COOL. 147. The method of claim 146, wherein the double-stranded oligonucleotide adaptor is blocked at at least one of its 3' termini.

148. The method of claim 147, wherein the double-stranded oligonucleotide adaptor is blocked at both of its 3' termini.

149. The method of claim 136, wherein the conditioned DNA fragments are amplified.

150. The method of claim 149, wherein DNA fragments are amplified through a PCR reaction.

151. The method of claim 150, wherein the DNA fragments are amplified through a PCR reaction through the use of double-stranded adaptors that have been attached to the conditioned DNA fragments.

152. The method of claim 136, further defined as comprising the steps of:

- a) obtaining a sample of DNA wherein the sample includes DNA fragments that do not include a 3' hydroxyl group, wherein the sample has been subjected to fragmentation;
- b) conditioning DNA fragments of the sample that lack a 3' hydroxyl by incorporating a 3' hydroxyl group thereon;
- c) attaching adaptors to DNA fragments of the sample; and